

G/PRTS

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COMPACT VEHICLE-MOUNTED ANTENNA

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is a 371 of PCT/US03/30453 09/26/2003 which
This application claims the benefit of U.S. Provisional Application No. 60/414,606,
filed September 27, 2002, which is incorporated herein by reference.

Field of the Invention

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The present disclosure relates to a compact antenna. More specifically, the present disclosure relates to a compact antenna that is suitable for use with an onboard wireless voice communications and data system.

Background

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In recent years, there has been an increasing demand for flexible, multi-functional wireless voice and data systems. In the automobile industry, for instance, new vehicles are often equipped with wireless voice and data systems, which communicate with one or more computers onboard the vehicle and are often referred to as "telematics systems."

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A typical telematics system, for example, might provide for wireless telephone services. Currently, two major types of wireless telephone services predominate the market in the United States: the Advanced Mobile Phone Service (AMPS) and the Personal Communication Service (PCS). A telematics system can typically operate using either of the two services depending upon which is available in a particular area. One fundamental difference between the two services, however, is the band in which they operate. AMPS operates in the cellular band between 824 and 894 MHz, whereas PCS operates between 1850 and 1990 MHz. Because each system operates in a different band, separate antennas (sometimes referred to as radiators) are used to transmit and receive the AMPS and PCS signals.

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A telematics system might also provide for vehicle positioning information using the Global Positioning System (GPS). By receiving transmissions from orbiting satellites, a GPS receive antenna can determine an automobile's location within a coordinate reference system. Thus, GPS receive antennas can be used in conjunction with an onboard computer to provide a number of driving and mapping services.

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As the number of functions performed by onboard telematics systems increases, the number of antennas in the vehicle also increases. Additional antennas, however, are often

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